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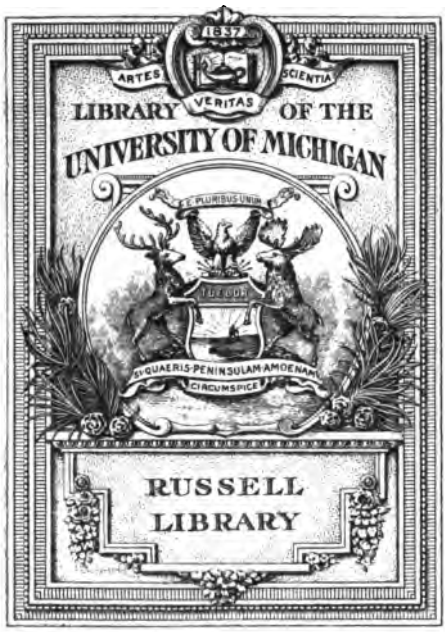
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U. S. DEPARTMENT OF AGRICULTURE.

TRUCK LANDS OF THE ATLANTIC SEABOARD.

BY

MILTON WHITNEY,

Chief of the Division of Agricultural Soils.

[Reprinted from the Yearbook of the U. S. Department of Agriculture for 1894.]

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(A portion of the article entitled "Soils in their Relation to Crop Production," in the Yearbook of the U. S. Department of Agriculture, 1894.)

TRUCK LANDS OF THE ATLANTIC SEABOARD.

By MILTON WHITNEY,

Chief of the Division of Agricultural Soils, U. S. Department of Agriculture.

Truck farming has existed as a separate agricultural industry for about thirty years. Previous to that time fruits and vegetables were grown in gardens and as part of the regular farm crops on all well-regulated farms, and in market gardens within a few miles of the larger towns and cities. People were content then to have the fruits and vegetables in the ordinary season in which they matured in their immediate locality. In recent years, however, transportation facilities have wonderfully improved, and the growing of fruits and vegetables for the early markets has developed into a distinct and special branch of farming.

A few years ago tomatoes were not expected in the Baltimore markets until the local crop ripened in July. During the winter and spring canned tomatoes were extensively and almost exclusively used. Now, however, the Florida crop of fresh tomatoes begins to arrive in the Baltimore market early in January in a fresh and healthy condition, as it requires only twenty-four or thirty-six hours for transportation—hardly longer than is required to bring the local crop on schooners and sloops from the lower estuaries of the Chesapeake Bay. These early tomatoes sell readily for 50 or 75 cents per dozen at the same time that Florida oranges are bringing from 15 to 30 cents per dozen, and while canned tomatoes are selling for 10 or 15 cents for a 3-pound can. This is followed by successive crops from Georgia, the Carolinas, Virginia, and the local crop of Maryland. The season for fresh tomatoes in the Baltimore market thus extends over fully nine months in the year. The same is true of other vegetables. There is a very great and increasing demand for these early vegetables, as they are put on the market in much better condition and at a lower cost than ever before, and families of very moderate means can afford to purchase them.

SOME ESSENTIAL FACTORS OF SUCCESSFUL TRUCK FARMING.

The conditions necessary for the success of this special industry of truck farming, in addition to personal qualifications and sufficient working capital, are favorable climatic conditions, light, sandy soils, in which the vegetables can be planted early, and which will force them

to an early maturity, and quick, direct, and safe transportation facilities, with arrangements for through cars, and refrigerator cars where these are necessary.

The early truck is grown upon a peculiar class of very light, sandy soils. These soils extend along the Atlantic coast for a distance of about 1,500 miles in a narrow strip bordering the coast, bays, and rivers from Massachusetts to Florida, the line running approximately northeast and southwest. The season advances northward along the coast at the average rate of about 13 miles per day. Lands located 100 miles south of Norfolk have the advantage of about a week in the maturity of the crops, thus commanding a higher market price, so that the truckers can afford the higher freight rates for the longer distance their products have to be hauled to the Northern markets. Similar land situated an equal distance west of Norfolk, with no direct connection with the North except through Norfolk, would have no advantage over the Norfolk crop by reason of the climate, and the added cost of transportation would make trucking unprofitable. A railroad, therefore, running north and south has a great advantage in developing local trucking interests over one running east and west. The high prices, due to lack of competition in the early market, afford the truck crops an opening northward without which the demand would be limited to the local market, but with the advantages of climate, quick soils, and lack of competition from the heavier and richer agricultural lands, these crops are sent to almost any point in the United States or in Canada with profit.

Land situated immediately on a railroad is worth several times as much as similar land situated 2 or 3 miles away, on account of the difficulty and expense of transporting the tender and bulky crop and the damage done in handling and hauling. The same is even more marked in the case of land situated immediately on the water, partly on account of its relation to transportation and partly from its freedom from frost. The influence of the proximity to the water is very marked in the early spring. Crops a quarter or a half mile inland may be injured or destroyed by frost while those immediately adjacent to the water are not affected. For this reason crops may be planted earlier in the spring on land near water, and consequently will mature earlier on stiffer soils at the end of a river neck, with water on two or three sides, than they will mature on soils of the same or even of lighter texture farther inland. These points must all be considered in judging of the suitability of a soil for truck farming.

The total area devoted to truck farming in the United States in 1889, exclusive of market gardening, was, according to the Eleventh Census, 534,440 acres. Of this about 61.31 per cent was located along the Atlantic Seaboard, distributed as shown in the table below. The "peninsular district" here includes the Eastern Shore counties of Maryland and Virginia, together with the State of Delaware.

The following table gives the acreage of the principal truck crops along the Atlantic Seaboard:

Acreage and value of land and truck products on the Atlantic Seaboard.

District.	Number of acres.	Per cent of total truck area in United States.	Value of land per acre.	Value of truck products.
New York and Philadelphia	108,135	20.23	$226.11	$21,102,521
Peninsular	25,714	4.81	98.76	2,413,648
Baltimore	37,181	6.93	97.50	3,784,696
Norfolk	45,375	8.49	135.50	4,692,859
South Atlantic	111,441	20.85	45.25	13,183,516
Total	326,816	61.31	.....	45,177,240

To produce this truck a very intense system of cultivation is practiced and the expense of making the crop is very great. The value of the land ranges from $40 to $500 per acre, depending upon the soil, location, distance from market, and transportation facilities. Their average value may be placed at about $200 per acre. Before they were used for truck farming they were worth no more than from $1 to $5 per acre. Even now, when they are remote from transportation lines, good truck lands can still be purchased for this sum. The cost of labor on the different crops ranges from about $10 to $30 per acre; the cost of seeds and plants from 50 cents to $10 per acre, depending upon the kind of vegetable. The fertilizers cost from $10 to $50 per acre, while individual planters use as much as $60 to $75 worth of high-grade fertilizers per acre. Very conservative estimates place the necessary working capital for a small truck farm at from $6,000 to $20,000. One large firm in eastern North Carolina claims that it requires $40,000 a year to make its crop.

These figures show that truck farming is an industry in which a large amount of capital is invested and which carries great risks. A successful truck grower requires a large capital as compared with what is needed for general farming, while the risks are as great and the enterprises are quite as heavy as in ordinary commercial or industrial lines. The man who risks $40,000 annually in any business, or even a capital of $20,000 or $6,000, must be cautious and must understand very well his conditions, opportunities, and powers.

Truck farming may be started on a very small scale, as with any other industry, but competition is so sharp and the margin of profit has become so small, while the risks are so great, that there is a distinct tendency among the larger planters to form combinations which make it more and more difficult for the smaller truckers to succeed. In this as in other industries a large planter can work on a narrower margin than a small one, providing the enterprise is not too great for him to carry with his available capital.

Truckers' associations are being organized in local centers, which receive daily market reports during the growing season from the principal markets and distributing points throughout the United States and Canada. These organizations have very great power and influence, and as they understand and appreciate these more they will exercise far more influence upon the markets than they do now. Three or four of the large planters around Norfolk, by putting their potato crops suddenly upon the New York market, can depress the price to such a small margin of profit that the smaller dealers can not afford to sell. Indeed, it is no uncommon thing during the harvesting season for the price of potatoes in New York to fall $1 a barrel in the course of a day. The truckers' associations try to distribute the crops through the different markets in the North and West so as to maintain uniform prices, and as they become better trained in their responsibilities and have a better appreciation of their powers and duties they will undoubtedly maintain more uniform prices than at present.

So close has competition become and so narrow are the margins of profit that it is stated that the difference of a cent a barrel on spinach in the present freight rates from Norfolk to New York reduces the price below the actual cost of production. The planters claim that they have such control over their crops and exercise such careful business methods in their production that the freight rates frequently determine the selling price, as is the case with many manufactured commodities.

Another factor which has had much to do with the success of truck farming has been the introduction of methods of canning or otherwise preserving fruits and vegetables for which there is no present demand, so they can be kept for winter use. This ability to preserve the crop has more than once saved the planters from what would otherwise have been disastrous seasons, when, as occasionally happens, the crops from a number of localities mature at the same time.

In truck growing an early maturity is essential to the profitable conduct of the business, and the yield per acre and quality of the crop are minor conditions. With wheat the yield per acre is the most essential factor and the quality or time of ripening is relatively unimportant; with tobacco the quality and texture of the leaf are the chief factors, and the yield and time of ripening are of less consequence; but with early truck the time of ripening is by far the most important feature.

Early maturity is very largely dependent upon the character of the soil. Light, sandy lands are most valuable for this industry because when properly treated the crop matures much earlier than on the heavy lands. The aim of the truck planter is to get the crop to market at the earliest possible moment, or else to delay it until the crops from the heavier soils of the State have all matured. The heavy grass and wheat lands will produce three or four times as great a yield of truck as the truck soils do even under the intense and expensive system of cultivation practiced. The latter, however, mature their

crops six or eight weeks earlier, and thus for the time are free from the competition of the richer soils.

The amount of clay present in these light truck soils has a very marked influence upon the development and time of ripening of a crop. The nature of the crop itself must be considered, of course, as all of the truck crops are not equally well adapted to the same kind of soil. Sweet potatoes and melons, for example, require a very light soil, containing but little clay, for they can not be forced well to an early maturity on the heavier soils. Cabbage and spinach, on the other hand, do better on the heavier soils and will mature about as early, for the reason that they can be planted in the fall and will stand the winter well on a soil containing from 8 to 12 per cent of clay in the subsoil, while they will not stand the winter so well on a soil containing less than 6 per cent of clay, which is the best soil for sweet potatoes and melons. Tomatoes will ripen a full week earlier on land having no more than 4 or 5 per cent of clay in the subsoil than they will on land having 8 or 9 per cent. They will do better and yield more per acre on the heavier land, but they are not so early and do not bring such high market prices.

With the qualification just made, soils having the smallest percentage of clay are invariably regarded as the earliest truck lands, except where heavier soils are situated directly at the point of a river neck and are thus earlier freed from frost, as already explained.

CONSTITUENTS OF TYPICAL TRUCK SOILS.

Typical truck soils of the Atlantic Seaboard contain from about 1 per cent to 12 per cent of clay in the subsoil. The lighter soils, or those containing the least amount of clay, are better adapted to the earlier and lighter spring vegetables, while the heavier soils are better adapted to the later and heavier truck and to those crops which can be planted in the fall for the early spring market. The conditions in a soil containing 10 per cent of clay in the subsoil frequently delay the planting of a spring crop from two to three weeks later than on a soil containing only 5 per cent of clay. The principal crops may be arranged as follows to show the kind of soil best adapted to them:

Sweet potatoes. Melons..... Asparagus ..... Irish potatoes..	Best adapted to lands having from 3 to 9 per cent of clay.
Tomatoes ..... Peas ..... Spinach..... Cabbage	Best adapted to lands having from 6 to 12 per cent of clay.

Soils having over 10 or 12 per cent of clay are too heavy and too retentive of moisture for the early truck crops. The yield per acre is larger than on the truck land, but it has to meet more competition. The whole value of the truck soils lies in the relation of these soils to moisture and in the relatively small amount of moisture they maintain

for crops. The soils are composed mainly of moderately coarse grains of sand and contain very little clay. The accompanying illustrations show the amounts of the different grades of sand, silt, and clay contained in 20 grams of two different types of truck land. The different grades of sand, silt, and clay were separated by sieves and by slow subsidence in water, and were put into small bottles and photographed.

The lighter soil, represented by figure 1, has only 4.40 per cent of clay. This is well adapted to the very early truck, such as sweet potatoes, melons, asparagus, Irish potatoes, tomatoes, and peas, but it is too light in texture for spinach and cabbage. The heavier soil, represented by figure 2, containing 9.16 per cent of clay, represents the heavier grade of truck lands, particularly well adapted to tomatoes, peas, spinach, and cabbage. It is too heavy for the earlier spring vegetables.

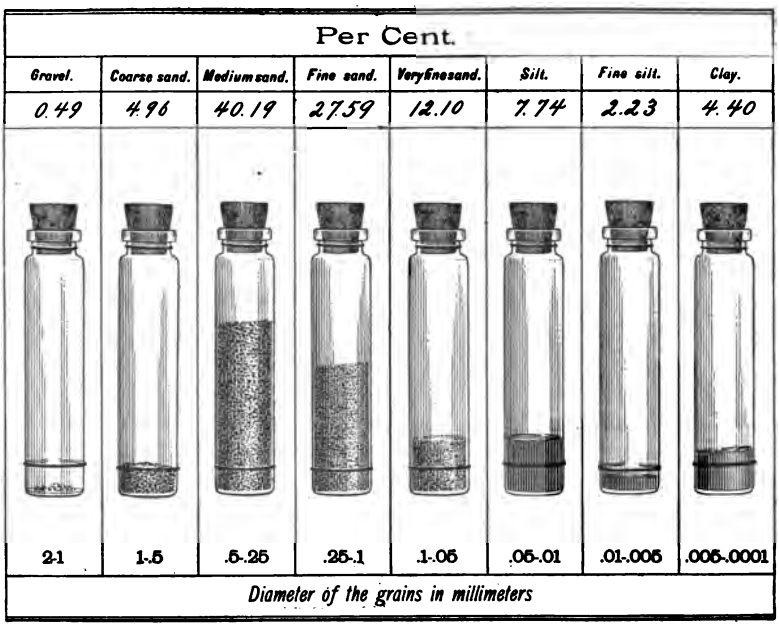

FIG. 1—Mechanical separation of the gravel, sand, silt, and clay in 20 grams of subsoil of the Columbia formation at Marley, Md., adapted to early truck.

Wheat can not be economically produced on these light truck lands, as the yield per acre under the best treatment would rarely exceed 5 bushels. A good wheat soil must contain at least 18 per cent of clay, unless, indeed, as is the case with many Western soils, they contain a large amount of silt. Still less can grass be economically produced on these light truck soils, for a good grass land requires at least 30 per cent of clay in the subsoil to make it sufficiently retentive of moisture, unless, indeed, water is supplied through artificial means. Within these light, sandy soils, upon which truck farming has been so successfully carried on, there is very little resistance to the descent of the rainfall, and the soil readily drains itself of all but a small supply of water. Grass and wheat lands, on the other hand, contain a large

amount of clay and very fine material, and offer a great resistance to the descent of the rainfall, and maintain an abundant supply of water.

As a basis of comparison, an illustration is given in figure 3 of the mechanical separation of the different grades of sand, silt, and clay in a heavy limestone soil of the Cumberland Valley, in western Maryland. This represents the very finest type of agricultural land for the staple agricultural crops.

It will be seen that this subsoil, which is adapted to both wheat and grass, has less than 5 per cent of sand, while a typical truck soil contains from 70 to 85 per cent of sand. If the same quantity of rain fell on this clay soil it would encounter such a resistance and there would be so much friction as it percolated through the innumerable small openings that the descent would be extremely slow and an abundant

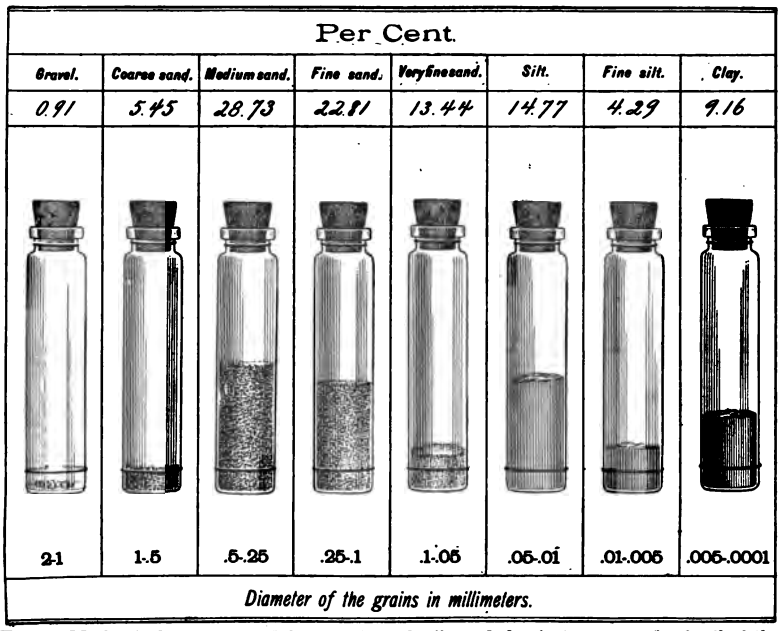

FIG. 2.—Mechanical separation of the gravel, sand, silt, and clay in 20 grams of subsoil of the Columbia formation at Marley, Md., adapted to cabbage and early truck crops.

supply of moisture would be maintained for vigorous vegetative growth of plants. On the light, sandy soils, maintaining a very limited supply of moisture, the plants, on the contrary, are thin textured, more succulent, yield less per acre, and are forced to a very early maturity. It is upon this fact that the success of truck farming ultimately depends.

Examinations have been made of the soils in a number of localities in the truck area of the Atlantic Seaboard, and the character of the soil devoted to truck has been found to be remarkably uniform. The influence of the texture of the soil on the distribution of the different truck crops is very marked. A brief description of the several localities, with analyses of some of the typical truck soils, will bring out these points very strongly, and will serve as a basis for the estimation of the adaptability of other soils in these localities for truck growing.

TRUCK SOILS OF FLORIDA AND SOUTH CAROLINA.

Only a few samples have been obtained of the truck soils of the far South. The mechanical analyses of three typical truck soils from

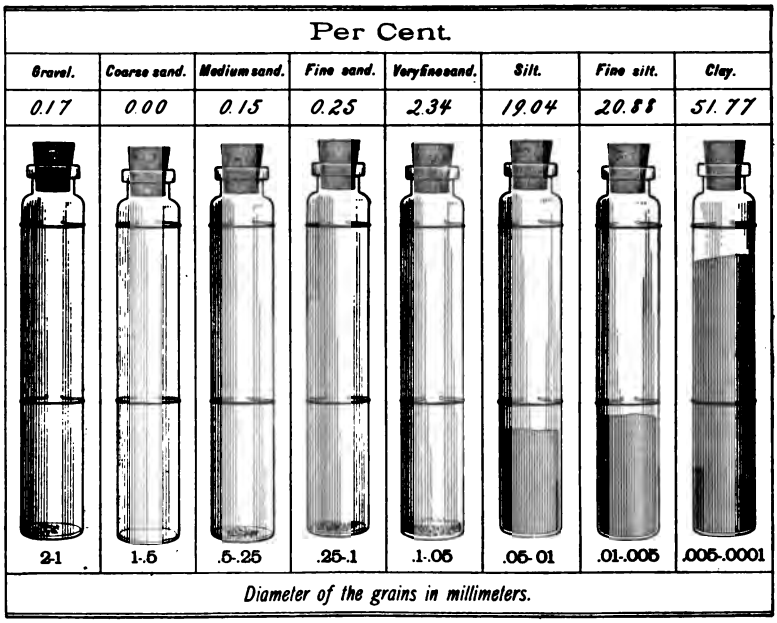

FIG. 3.—Mechanical separation of the gravel, sand, silt, and clay in 20 grams of the limestone subsoil from Frederick, Md., adapted to wheat and grass.

Florida are given in the accompanying table, together with the analyses of five soils from South Carolina.

TABLE 1.—*Mechanical analyses of subsoils of truck lands.*

No.	Locality.	Moisture in air-dry sample.	Organic matter.	Gravel (2-1mm).	Coarse sand (1-.5mm).	Medium sand (.5-.25mm).	Fine sand (.25-.1mm).	Very fine sand (.1-.05mm).	Silt (.05-.01mm).	Fine silt (.01-.005mm).	Clay (.005-.0001mm).
	FLORIDA.	*P. ct.*	*P. ct.*	*P. ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1622	Altoona, Etonia scrub	0.68	0.63	0.34	3.92	40.39	44.97	6.96	0.79	0.33	1.16
1624	Eustis, high pine land	0.25	0.66	2.74	11.70	42.05	35.29	4.50	0.88	0.56	1.23
1620	Altoona, high pine land	0.15	0.87	1.61	4.52	12.28	27.58	48.12	2.16	0.81	1.31
	SOUTH CAROLINA.										
78	Wedgefield	.....	[1] 1.32	5.88	31.45	27.31	28.14	3.96		3.97	
86	James Island, sandy land	.....	1.06	0.00	0.00	0.67	90.14	3.25		4.78	
88	James Island, "provision land"	.....	1.65	0.00	0.88	2.50	82.97	6.30		5.70	
84	James Island	.....	1.76	0.59	3.67	4.27	78.88	4.20		6.63	
82	James Island, "clay land"	.....	1.62	0.00	0.54	1.03	83.20	6.44		7.17	

[1] The figures in this column were determined by difference, and include the total organic matter, moisture, and loss in the analysis.

It will be seen that the Florida soils contain very little silt, fine silt, or clay, the whole amount of these three grades being less than 5 per cent. They are extremely light-textured, sandy soils, adapted to the earliest spring vegetables. Climatic conditions in south and central Florida make it possible, of course, to produce outdoor crops throughout the winter, and these lands are well adapted to the forcing of that class of vegetables.

The samples from South Carolina differ more in their content of fine material. The sample from Wedgefield has considerable coarse sand, but very little silt and clay. This soil is particularly well adapted to sweet potatoes, melons, and the forcing of early spring vegetables.

Of the several samples from James Island, the sandy land (No. 86) is considered the earliest, and is better adapted to the forcing of the early spring vegetables. The clay land (No. 82) is better adapted to the heavier and later vegetables, particularly tomatoes, cabbage, and spinach.

Owing to the difference in the location and in the climate, the truck crops of Florida are practically all marketed before the South Carolina crops come on, and the latter are harvested before the North Carolina and Virginia crops mature.

TRUCK LANDS OF EASTERN NORTH CAROLINA.

The accompanying table gives the mechanical analyses of a number of typical truck lands in eastern North Carolina:

TABLE 2.—*Mechanical analyses of subsoils of truck lands.*

No.	Locality.	Organic matter.[1]	Gravel (2–1mm).	Coarse sand (1–.5mm).	Medium sand .5–.25mm).	Fine sand (.25–.1mm).	Very fine sand (.1–.05mm).	Silt (.05–.01mm).	Fine silt (.01–.005mm).	Clay (.005–.0001mm).
	NORTH CAROLINA.									
		Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
1510	Newbern, early spring truck	0.67	0.00	0.30	6.04	49.63	32.39	6.24	1.93	2.80
1524	Edenton	2.54	0.00	0.00	4.74	36.16	38.71	10.27	4.18	3.40
1534	Hertford	.....	0.00	0.00	6.37	38.34	9.67	7.54	2.35	6.47
1566	Elizabeth City	3.14	0.00	0.00	4.94	6.11	43.61	25.73	7.27	9.20
1517	Newbern	1.57	0.00	3.91	22.60	29.03	22.38	7.03	3.16	10.32
1570	Camden	1.90	0.00	2.46	5.17	19.79	33.53	19.69	7.11	10.35
1542	Chapanoke	1.18	0.00	0.00	7.68	41.77	13.05	18.92	5.03	12.37
1514	Newbern, heavy cabbage land	1.70	0.00	2.04	10.57	10.65	22.75	30.22	8.95	13.12
1519	Elizabeth City	3.34	0.00	0.00	2.07	4.75	39.16	30.04	6.27	14.37
1522	Edenton, heavy truck land	2.35	0.00	1.13	6.11	20.58	27.82	18.37	7.79	15.85

[1] The figures in this column were determined by difference, and are the total organic matter, moisture, and loss in the analyses.

The influence of the texture of the soil on the distribution of different truck crops is here also very apparent. Sample No. 1510, containing

2.80 per cent of clay and 6.24 per cent of silt, was taken from a field near Newbern adjoining that from which sample No. 1514 was obtained. This latter, it will be seen, has 13 per cent of clay and nearly 45 per cent of the three finest grades, viz, silt, fine silt, and clay. The first sample (No. 1510) is admirably adapted to the very early spring vegetables, such as potatoes, peas, tomatoes, sweet potatoes, melons, and asparagus. The heavier lands are adapted to the heavier and later truck, particularly cabbage, spinach, tomatoes, and peas. Crops planted at the same time on these two soils in the early spring would mature from six to ten days earlier on the light-textured soil than on the heavier soil. Samples Nos. 1524 and 1534, from Edenton and Hertford, are adapted to the very early spring vegetables. These soils are both too light in texture for cabbage. Sample No. 1522 represents the heavier soils at Edenton, well adapted to cabbage, although rather too heavy even for this crop. Sample No. 1566, from Elizabeth City, is well adapted to all truck crops. Sample No. 1519, from near the same place, would be classed as a very heavy truck soil, and adapted only to the later crops, except that, being adjacent to the water, it admits of planting a week or ten days earlier, and so matures its crop about the same time as lighter-textured soils further inland.

TRUCK SOILS OF VIRGINIA.

The accompanying table gives the mechanical analyses of some of the finest truck soils around Norfolk, Va. The two samples, Nos. 1595 and 1593, represent the finest type of truck land of that locality. They are adjacent to the water and the crops are thus insured against damage from late spring frosts.

TABLE 3.—*Mechanical analyses of subsoils.*

No.	Locality.	Organic matter, water, loss.	Gravel (2-1mm).	Coarse sand (1-.5mm).	Medium sand (.5-.25mm).	Fine sand (.25-.1mm).	Very fine sand (.1-.05mm).	Silt (.05-.01mm).	Fine silt (.01-.005mm).	Clay (.005-.0001mm).
	VIRGINIA.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
1595	5 miles west of Norfolk.....	1.36	0.00	1.42	23.27	38.25	7.51	15.14	5.90	7.15
1593	4 miles west of Norfolk.....	1.26	0.00	0.64	24.04	41.03	5.71	11.54	7.33	8.40
1601	3 miles east of Norfolk.....	4.15	0.00	0.27	42.12	12.96	6.63	20.20	4.79	8.88
1599	2½ miles east of Norfolk.....	2.20	0.00	2.67	25.17	5.12	10.16	31.45	8.88	14.35

These soils are both adapted to all of the early spring vegetables, but they are rather light in texture for cabbage and spinach. These crops will not stand the winter well on these light soils and have to be set out early in the spring. Sample No. 1599, from east of Norfolk, is very much heavier in texture than those just mentioned. This is a type of a large area of land in that locality admirably adapted to cabbage and spinach, and these are the staple crops. They are too heavy for sweet potatoes

and melons, and also for Irish potatoes. The Irish potatoes do well, but they mature nearly a week or ten days later than on the lighter soils west of Norfolk. The heavier soils are more valuable for cabbage for the reason that the plants can be put out in the fall and attain some growth during the fall and winter, and thus have an advantage over a crop which has to be planted on the lighter soils in the spring.

TRUCK SOILS OF MARYLAND.

An examination has been made of soils from a number of localities in the truck area of Maryland. This area is divided into the West Shore, or southern Maryland, and the Eastern Shore, by the Chesapeake Bay. The truck lands of southern Maryland occur principally in a narrow belt bordering the rivers and bay shore. The nearer the water the more valuable the land, both on account of the freedom from frosts and the cheapness of water transportation. The samples in this table are arranged according to the amount of clay in the subsoil. As thus arranged they are very nearly in the order of their relative agricultural value. The lighter soils, that is, those containing the smallest amount of clay, are considered the earliest and best adapted for the spring vegetables. The lands containing more than 6 or 7 per cent of clay are better adapted to cabbage, small fruits, and the later and heavier truck crops. The exception to this is where the heavier lands, as is the case with No. 573, for example, are situated directly on a point of land nearly surrounded by water, which insures them against spring frosts and enables the crops to be planted a week or two earlier than would be safe further inland.

To show the effect of texture on the adaptation of these lands to the different crops, two samples from Tick Neck may be cited. No. 585 represents the lightest grade of sandy land of that locality, adapted to the early spring vegetables, while No. 587, with the same exposure and separated only by a short distance, is much later and adapted to the heavier crops because it contains more clay and is more retentive of moisture.

TABLE 4.—*Mecnanical analyses of subsoils of truck lands.*

No.	Locality.	Organic matter, water, loss.	Gravel (2–1mm).	Coarse sand (1–.5mm).	Medium sand (.5–.25mm).	Fine sand (.25–.1mm).	Very fine sand (.1–.05mm).	Silt (.05–.01mm).	Fine silt (.01–.005mm).	Clay (.005–.0001mm).
	MARYLAND (WEST SHORE).	*P. ct.*	*P. ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*P. ct.*
815	Severn River	3.36	0.63	3.73	38.01	28.69	10.31	10.26	1.81	3.20
.....	Near Baltimore	8.21	[1]4.03	20.88	41.11	14.25	3.58	2.64	1.61	3.69
209	Cove Point	0.04	0.51	1.32	17.84	55.82	16.75	3.08	0.90	3.74
471	Marley post-office	0.16	0.28	5.42	41.45	26.73	12.46	7.22	2.21	4.07
472	.....do	0.30	0.49	4.96	40.19	27.59	12.10	7.74	2.23	4.40
561	Armiger	0.30	0.74	7.13	36.21	22.82	14.15	9.26	4.68	4.71

[1] Including 2.11 per cent larger than 2mm.

TABLE 4.—*Mechanical analyses of subsoils of truck lands*—Continued.

No.	Locality.	Organic matter, water, loss.	Gravel (2–1mm).	Coarse sand (1–.5mm).	Medium sand (.5–.25mm).	Fine sand (.25–.1mm).	Very fine sand (.1–.05mm).	Silt (.05–.01mm).	Fine silt (.01–.005mm).	Clay (.005–.0001mm).
	MARYLAND (WEST SHORE)—con'd.	*P. ct.*	*P. ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*P. ct.*
585	Tick Neck, sandy land	0.24	0.45	10.33	46.29	20.15	8.17	7.11	2.29	4.77
583	1½ miles northeast of Marley	0.55	0.28	6.09	39.48	23.00	14.69	8.46	2.48	5.01
591	1 mile north of Marley	1.05	0.39	5.52	36.53	24.91	11.79	9.89	4.51	5.41
563	Armiger	0.31	0.39	7.04	37.51	21.45	13.45	10.72	3.72	5.41
469	Glenburnie	0.25	3.47	12.05	44.06	18.02	9.59	5.73	1.37	5.46
505	2 miles west of Armiger	0.50	2.12	8.81	31.35	22.82	16.76	10.19	2.08	5.47
1616	Washington, D. C.	3.70	1.27	4.53	35.19	21.47	9.19	15.24	4.05	5.81
579	Rock Point	1.00	0.09	2.31	31.18	25.49	16.92	12.86	3.82	6.33
567	1 mile west of Armiger	1.09	2.46	13.32	39.83	14.14	9.34	10.17	3.29	6.36
589½	Marley Neck	6.04	0.97	6.22	29.96	21.91	11.57	12.80	4.08	6.45
473	... .do	0.38	0.44	6.46	36.73	19.54	10.28	13.42	5.61	7.14
270	South River Neck	0.54	0.32	5.81	40.63	28.93	9.44	4.60	2.04	7.63
587	Tick Neck, loam	3.18	6.06	22.09	29.87	9.82	6.52	10.71	3.86	7.89
145	Patuxent River	1.44	1.78	7.63	38.35	21.80	6.87	11.73	2.48	7.92
577	Magothy Neck	0.97	1.52	4.50	29.88	23.77	10.36	17.16	3.83	8.01
589	2 miles north of Armiger	.....	2.33	26.08	33.06	10.18	4.71	13.14	3.58	8.29
575	Magothy Neck, loam	0.08	1.26	8.91	47.84	6.29	6.29	15.08	5.76	8.33
571	.....do	1.14	0.34	2.97	21.18	18.19	17.17	21.05	9.57	8.39
569	Magothy Neck	0.90	0.87	5.82	26.22	17.55	16.34	16.33	7.45	8.52
268	South River	2.48	0.04	1.97	28.64	39.68	11.43	4.95	2.02	8.79
590	2 miles north of McCubbins' Rock Point	0.44	0.91	5.45	28.73	22.81	13.44	14.77	4.29	9.16
581	½ mile north of McCubbins' Rock Point	0.71	0.56	4.83	27.49	16.36	12.51	22.39	5.03	10.12
467	Shipley	1.87	0.76	8.55	35.04	19.26	8.42	11.38	4.13	10.59
476	Furnace Branch	3.52	[1]2.80	8.36	20.11	10.72	10.15	17.98	8.76	11.60
573	Magothy Neck, "gravelly loam"	1.55	3.07	11.92	29.99	6.35	5.56	9.91	6.21	12.84

[1] Including 1.08 per cent larger than 2mm.

The Eastern Shore of Maryland, included in the peninsula district, has been a noted center of truck farming. The crops mature after the bulk of the Virginia crop has been marketed.

TABLE 5.—*Mechanical analyses of truck subsoils.*

No.	Locality.	Moisture in air-dry sample.	Organic matter.	Gravel (2–1mm).	Coarse sand (1–.5mm).	Medium sand (.5–.25mm).	Fine sand (.25–.1mm).	Very fine sand (.1–.05mm).	Silt (.05–.01mm).	Fine silt (.01–.005mm).	Clay (.005–.0001mm).
	MARYLAND (EASTERN SHORE).										
1190	1 mile east of Barren Creek Springs	*P. ct.* 0.22	*P. ct.* 1.04	*P. ct.* 0.81	*Per ct.* 9.60	*Per ct.* 53.85	*Per ct.* 25.93	*Per ct.* 2.77	*Per ct.* 2.01	*Per ct.* 0.94	*P. ct.* 1.46
1209	Salisbury	0.14	0.91	0.85	6.29	38.11	56.66	9.77	4.53	0.94	1.76
1198	2 miles west of Barren Creek Springs	0.22	0.87	0.48	6.71	48.39	30.27	2.79	4.62	1.21	2.06

TABLE 5.—*Mechanical analyses of truck subsoils*—Continued.

No.	Locality.	Moisture in air-dry sample.	Organic matter.	Gravel (2-1mm).	Coarse sand (1-.5mm).	Medium sand (.5-.25mm).	Fine sand (.25-.1mm).	Very fine sand (.1-.05mm).	Silt (.05-.01mm).	Fine silt (.01-.005mm).	Clay (.005-.0001mm).
	MARYLAND (EASTERN SHORE)—continued.										
		P. ct.	*P. ct.*	*P. ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*P. ct.*
1213	1 mile southeast of Salisbury	0.33	0.50	1.91	6.43	32.95	33.69	10.22	9.15	2.08	2.60
1192	2 miles south of Barren Creek Springs	0.19	0.85	0.82	6.64	45.21	29.30	3.37	9.38	1.96	2.87
1223	Concord	0.44	2.02	0.99	6.94	33.29	31.36	9.05	10.24	2.81	2.97
1188	½ mile south of Barren Creek Springs	0.01	0.75	0.32	8.75	46.37	32.44	3.45	3.01	0.78	2.99
1234	New Market	0.23	1.29	0.50	6.47	31.07	15.80	7.40	26.73	4.26	3.50
1207	2 miles west of Salisbury	0.26	0.85	2.03	7.93	38.36	25.55	9.77	7.40	3.33	4.02
1240	6 miles south of Preston	0.32	1.52	5.78	17.54	37.23	17.04	5.71	8.40	2.16	4.04
1238	Cabin Creek	0.47	1.65	4.61	15.31	35.66	18.36	4.76	10.62	3.63	4.22
1219	American Corners	0.20	1.07	4.32	12.95	39.36	17.49	7.09	10.56	1.98	4.54
1232	1 mile west of New Market	0.42	1.70	0.72	6.41	31.93	16.70	11.94	15.82	7.51	4.81
1228	3 miles west of New Market	0.42	1.10	2.77	12.02	34.53	24.30	7.21	9.45	2.24	5.33
1225	Beulah	0.61	2.25	1.06	8.39	21.87	12.73	12.88	27.81	7.05	5.35
1230	2½ miles northwest of New Market	0.47	1.43	0.89	6.92	27.64	20.48	10.98	22.04	3.28	5.60
1215	3½ miles southeast of Salisbury	0.25	1.39	1.36	6.02	28.52	27.95	11.77	9.10	3.00	5.61
1217	6 miles southeast of Salisbury	1.29	2.84	1.15	6.99	33.52	17.85	13.19	12.21	2.86	7.15
1297	Mount Holly	0.75	1.65	2.21	8.40	23.07	14.03	13.54	24.54	4.41	7.53
1186	Linkwood	0.85	1.98	0.52	6.11	28.43	18.34	9.49	21.97	4.03	7.84
1236	New Market	1.15	2.07	0.37	6.35	24.27	13.12	11.16	22.94	2.95	9.43
1299	Mount Holly	0.92	2.03	0.69	5.97	22.91	14.68	12.17	25.19	3.98	11.19

The same marked effect of the texture of the soil on the distribution of the different classes of crops is shown in the investigations of the soils of this locality. Without considering the influence of the proximity of large bodies of water, the lighter soils, that is, those containing the least amount of clay, are invariably regarded as the earlier, and as a rule the crops mature from six to eight or ten days earlier than on the heavier truck soils. Salisbury is one of the principal centers of the trucking interest, and it will be seen that the soils around this place are very light textured and well adapted to the early spring vegetables. Barren Creek Springs is another locality where the soils are well adapted to early truck, but the industry has not yet been developed there as fully as at Salisbury.

A number of samples in this table were taken from Caroline County, where wheat is still grown on nearly all the farms, as it was grown throughout the present truck area until the peculiar adaptation of

these lands to truck farming and the improved facilities for transportation induced the farmers to abandon wheat and take up this much more profitable industry. These samples show that the soils of Caroline County which have been examined are well adapted to early truck, and nearly all of the county would be greatly benefited if the farmers would abandon wheat and turn their attention to this special line of farming.

The accompanying table gives the mechanical analyses of a number of samples from one of the most famous centers of truck farming in the country, namely, that portion of Long Island adjacent to New York City.

TABLE 6.—*Mechanical analyses of subsoils of truck lands.*

No.	Locality.	Moisture in air-dry sample.	Organic matter.	Gravel (2-1mm).	Coarse sand (1-.5mm).	Medium sand (.5-.25mm).	Fine sand (.25-.1mm).	Very fine sand (.1-.05mm).	Silt (.05-.01mm).	Fine silt (.01-.005mm).	Clay (.005-.0001mm).
	NEW YORK.	*P. ct.*	*P. ct.*	*P. ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*P. ct*
616	1 mile south of Jamaica...	1.08	1.40	9.09	21.46	35.75	16.05	6.18	5.24	1.35	3.29
558	1 mile south of Jamaica..	0.10	1.52	18.44	28.77	28.86	7.98	3.95	5.50	1.39	3.37
55	1½ miles east of New Lots.	0.22	3.78	6.15	18.35	34.57	14.18	7.49	9.13	1.87	4.13
532	Babylon	0.12	2.74	4.81	13.62	31.58	10.19	7.76	18.51	3.29	6.70
539	Jamaica	0.14	2.25	9.59	19.06	24.91	9.65	10.08	14.10	3.29	7.25
18	Flatlands.....	1.30	5.80	8.69	10.86	20.01	6.49	12.15	23.85	5.99	7.56
31	½ mile east of New Lots.	0.62	1.88	11.80	22.20	25.53	8.70	7.32	12.63	2.32	7.72
56	1½ miles east of New Lots.	0.81	2.33	4.61	15.59	34.82	12.94	10.95	6.82	3.35	8.58
43	1 mile east of New Lots.	0.84	2.50	12.94	11.52	28.08	12.00	10.72	10.48	2.63	8.60
23	New Lots.....	1.06	3.32	6.46	13.24	19.14	8.46	17.20	21.57	3.60	11.20
20	1 mile west of Flatlands..	1.24	4.66	1.11	3.91	5.98	4.76	13.15	40.15	12.10	12.86

It will be seen that these soils have the same texture as the samples which have already been given from the Southern coast. The influence of the texture of the soil on the distribution of the different classes of truck crops is very marked here also. The lighter-textured soils are adapted to the early spring vegetables, while the heavier soils are better adapted to the heavier crops, such as cabbage and spinach, and to small fruits. For example, it is said that spring-planted crops can be forced to mature about two weeks earlier on soils represented by samples Nos. 616 and 558 than on the heavier soil, No. 539, the exposure and other conditions being nearly identical in the two places.

The accompanying table gives the mechanical analyses of early truck soils from Providence, R. I., and from Boston, Mass.

TABLE 7.—*Mechanical analyses of subsoils.*

No.	Locality.	Moisture in air-dry sample.	Organic matter.	Gravel (2-1mm).	Coarse sand (1-.5mm).	Medium sand (.5-.25mm).	Fine sand (.25-.1mm).	Very fine sand (.1-.05mm).	Silt (.05-.01mm).	Fine silt (.01-.005mm).	Clay (.005-.0001mm).
	MASSACHUSETTS.	*P. ct.*	*P. ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*P. ct.*
187	Boston	0.62	2.50	1.64	3.42	10.58	29.32	43.93	4.99	1.03	1.84
508	.....do	1.07	3.56	0.85	3.56	15.25	30.07	29.31	12.02	1.52	2.64
95	.....do	.....	5.94	1.53	6.45	16.06	19.95	22.18	13.57	2.40	7.45
	RHODE ISLAND.										
523	Providence[1]	0.20	1.02	10.70	15.20	27.78	31.07	10.24	2.86	0.53	1.14
516	.....do	0.99	5.94	7.35	11.02	23.17	24.52	17.45	4.79	1.88	1.62

[1] Gravel larger than 2mm 21.21
Fine earth 78.79
100.00

The early truck farming of the Atlantic Seaboard is confined to soils similar in texture to those whose analyses have been given. The climate of course has much to do with the actual time of harvest in each locality, but the character of the soils and the proximity to large bodies of water determine the distribution of crops in each locality, and soils and transportation facilities together define the area over which truck farming can be profitably carried on in any locality.

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